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Polymorphic epithelial mucin (MUC-1)-containing circulating immune complexes in carcinoma patients.

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Circulating immune complexes (CICs) containing polymorphic epithelial mucin (PEM/MUC-1) were found in sera of 24.5% of 151 primary breast carcinoma patients and 18-21.4% of patients with advanced ovarian (n = 56) and breast carcinomas (n = 61), 37% of patients with benign breast tumours, but in only 2.1% of 96 healthy individuals. The incorporation of PEM into CICs affects the detection of circulating PEM in commercial immunoassays such as the CA 15-3 assay, as suggested by a negative correlation between levels of PEM-containing immune complexes (PEM-CICs) and CA 15-3 values, and confirmed by isolation of PEM from CA 15-3-negative sera containing high levels of PEM-CICs. The amounts of PEM masked by human antibodies correspond to significant values of the CA 15-3 assay when monitoring patients for carcinoma. Most antibodies in PEM-CICs were of IgG class, suggesting their specific nature to the PEM epitopes.

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Detection of a circulating antibody against a peptide epitope on a mucin core protein, MUC1, in ulcerative colitis.

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This study aims at clarifying whether the humoral immune response to the tandem repeat domain of MUC1 can be induced or not in vivo. The expression of MUC1 mRNA in the colon was revealed by Northern blot analysis, and cDNA cloning of an extracellular tandemly repeated domain of MUC1 was then performed to prepare the recombinant MUC1 protein. A cDNA clone coding for ten repeat domains was ligated into an expression vector in prokaryotes, resulting in a recombinant protein which could react with the MAb MUSE11 against an adenocarcinoma-associated antigen whose epitope has been shown to be localized in the tandem repeat domain on MUC1. The reactivity of sera from patients with ulcerative colitis with the recombinant protein was evaluated by SDS-PAGE and Western blot analysis to detect the antibodies against this tandem repeat domain. Five out of 19 serum samples tested positive, and these reactions were totally inhibited by MAb MUSE11, suggesting that the epitope recognized by these antibodies in sera is almost identical to that recognized by MAb MUSE11. The data represent the first demonstration of antibody production against a peptide epitope of the tandem repeat domain of MUC1.

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